DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-003627
Date Inspected: 31-Jul-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 2230
OSM Departure Time: 730
Location: Shanghai, China

CWI Name:	See below			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG Fabrication

Summary of Items Observed:

Caltrans Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

Orthotropic Box Girder (OBG) and Tower Fabrication:

QA Inspectors Mr. Sun Bo & Mr. LiQing Lv

Bay #8

The QA Inspector observed ZPMC welder Mr. Zhang Wei stencil 066399 is using welding procedure specification WPS-B-T-4132 to make tower skin plate fillet weld SSDI-SA277 AB6. The QA Inspector observed a welding current of approximately 300 amps and 29.1 volts. Prior to welding the QA inspector observed ZPMC had several electrical heaters on the weld joints where this welding was going to take place. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Jiang Junlin stencil 067876 is using welding procedure specification WPS-B-T-4132 to make tower skin plate fillet weld SSDI-SA277 AB6. The QA Inspector observed a welding current of approximately 305 amps and 30.5 volts. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Zhang Wei, stencil 066399 is using welding procedure specification WPS-B-T-2233-B-U3 to make flux cored tower fillet weld SSD1-SA311 A/B-3A. The QA Inspector observed a welding current of approximately 210 amps and 25.2 volts. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector performed random measurements of the bevel angles on several of the plates that had been prepared for other similar welds as listed above and the angles measured appear to comply with the angles shown in welding procedure specification WPS-B-T-2233-B-U3.

Bay 1

The QA Inspector monitored welding of closed rib Production Monitoring Test (PMT) representing deck plates DP588-001 and DP563-001 which were welded today starting at approximately 0100 hours using gantry #2. The QA Inspector observed six ZPMC welders using welding procedure specification WPS-B-T-2342-U1(Urib)-4 using the gas metal arc welding process for the root pass and submerged arc welding process for the cover pass of partial penetration groove welds on six PMT closed rib welds at the same time. ZPMC has multiple flux cored welding manipulators attached to a movable gantry that runs on a track along the length of the stiffener plates. The QA Inspector observed a welding travel speed of approximately 520 mm per hour for the root passes and 510 mm for the cover passes. As the welding commences, each of the welders is responsible for one of the welding heads. Welder Ms. Zhang Li Ping, stencil 218040 completed the root pass of weld #1 with a welding current of approximately 360 amps and 30.6 volts and the cover pass welding current of approximately 680 amps and 25.1 volts. Welder Mr. Zhao Cheng Shuang, stencil 59400 completed the root pass of weld #2 with a welding current of approximately 350 amps and 31.2 volts and the cover pass welding current of approximately 680 amps and 25.3 volts. Welder Mr. Xu Guo Yin, stencil 59443 completed the root pass of weld #3 with a welding current of approximately 370 amps and 30.5 volts and the cover pass welding current of approximately 680 amps and 25.0 volts. Welder Mr. Jiang Shuang Chen, stencil 201788 completed the root pass of weld #4 with a welding current of approximately 380 amps and 30.8 volts and the cover pass welding current of approximately 675 amps and 24.8 volts. Welder Mr. Zhang Shao Hua, stencil 59403 completed the root pass of weld #5 with a welding current of approximately 360 amps and 30.3 volts and the cover pass welding current of approximately 680 amps and 25.0 volts. Welder Mr. Song Yun Shu, stencil 59421 completed the root pass of weld #6 with a welding current of approximately 355 amps and 30.5 volts and the cover pass welding current of approximately 680 amps and 25.3 volts. The QA Inspector performed random visual inspection of the root pass and cover passes and items observed appear to comply with project specifications. Following completion of the welding ZPMC QC CWI Inspector Mr. Sun Bo marked a 500 mm length of the welds as being the areas that are to be representative of this PMT test. The QA Inspector observed ZPMC NDE inspector Mr. Mu Ji Long performing ultrasonic partial penetration evaluation of each of the six welds in the areas where Mr. Bo had marked for PMT testing. Following Mr. Long's UT acceptance the QA Inspector marked a total of 15 locations where macroetch samples are to be obtained. ZPMC then cut and prepared the macroetch samples. ZPMC QC CWI Inspector Mr. Sun Bo and ABF representative Mr. Wang Zhen Hua both visually inspected these macroetch samples and documented their acceptance on the ZPMC "Production Monitoring Test Plate Inspection Report sheet dated 8-01-08. The QA Inspector visually inspected and dimensionally measured the penetration each of these macroetch samples and items observed by the QA Inspector appear to comply with project specifications.

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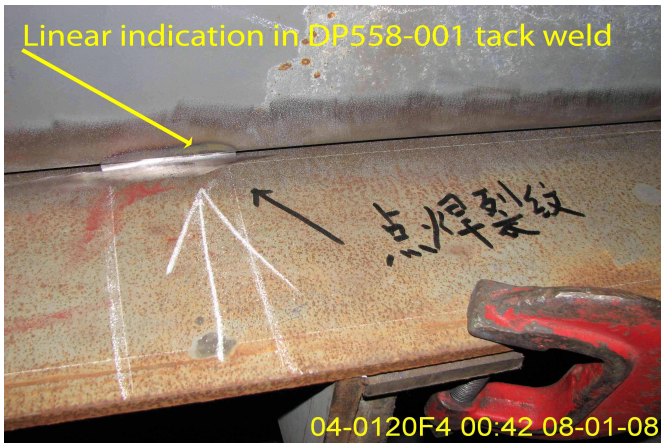
The QA Inspector recorded information for all fifteen PMT specimens on an Excel spreadsheet titled “SAS OBG PMT Macroetch Log” and a copy of this file is posted on the Caltrans “Team China” internal common drive which is accessible to all Quality Assurance personnel including Task Leaders and Structural Materials Representatives.

The QA Inspector performed random visual inspection of a portion of the tack welds on DP558-001 after ZPMC had accepted magnetic particle inspections of these welds. The QA Inspector observed one of the tack welds near the center of weld #10 appears to have a linear indication that had been formed by alignment of magnetic particles in the center of the tack weld. The QA Inspector informed ZPMC QC Inspector Mr. Sun Bo and ABF Inspector Mr. Wang Zhen of the linear indication and Mr. Bo had the tack weld ground and ZPMC MT Inspector performed a magnetic particle inspection and the QA Inspector observed the linear indication appears to have been removed.



Summary of Conversations:

See above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Ady Velasco 13816942685, who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer